CLAIMS

What is claimed is:

1. A brake system comprising:

a first member being driven to bring a friction surface against an item to be braked; and

a magnet having at least a first set of north and south poles, and a Hall effect sensor, one of said magnet and said Hall effect sensor being mounted to be movable with said first member when said first member moves the friction surface to actuate braking, the other of said magnet and said Hall effect sensor being mounted on an item movable relative to said first member, relative movement between said magnet and said Hall effect sensor being along a first path, and an axis being defined between said at least first set of north and south poles of said magnet, said axis and said first path being non-parallel.

2. A brake as set forth in Claim 1, wherein said first member is a piston for bringing a brake pad into engagement with an item to be braked.

3. A brake as set forth in Claim 2, wherein said magnet is fixed to move with said piston, and said Hall effect sensor is fixed within a housing for said brake.

4. A brake as set forth in Claim 3, wherein said Hall effect sensor provides feedback of an amount of adjustment necessary for said piston.

5. A brake as set forth in Claim 4, wherein said feedback is provided to an electric motor for driving adjustment of said piston.

6. A brake as set forth in Claim 5, wherein there are a pair of spaced pistons, and each of said pistons are driven for adjustment.

7. A brake as set forth in Claim 3, wherein said magnet is fixed to move with an element mounted on a manual adjustment mechanism, said element being movable when said piston is driven to move the brake pad to actuate braking.

8. A brake as set forth in Claim 1, wherein said magnet includes a single pair of spaced poles, with said first path crossing said axis, and including potential movement on each side of said axis.

9. A brake as set forth in Claim 1, wherein said magnet includes a pair of spaced north and south poles sets defining ends of movement, and said path being laterally between said pair of spaced north and south pole sets.

10. A brake as set forth in Claim 1, wherein said magnet is a bar magnet having north and south pole faces.

11. A brake as set forth in Claim 1, wherein said magnet is movable relative to said Hall effect sensor along a direction through which said first member moves to actuate braking, said magnet being constrained against movement relative to said Hall effect sensor in other directions.

12. A brake as set forth in Claim 11, wherein said magnet and said sensor have overmolded plastic housings, said plastic housing being guided along each other to constrain said magnet and said Hall effect sensor to move relative to each other only along said direction of movement of said first member.

13. A distance sensor comprising:

a magnet having at least a first set of north pole and a south poles, with an axis defined between said north and south poles; and

a Hall effect sensor, said Hall effect sensor and said magnet being mounted for movement relative to each other along a path, said path being non-parallel to said axis.

14. A sensor as recited in Claim 13, wherein said magnet includes a single pair of spaced poles, with said first path crossing said axis, and including potential movement on each side of said axis.

15. A sensor as recited in Claim 13, wherein said magnet includes a pair of laterally spaced north and south poles sets defining ends of movement, and said path being laterally between said pair of spaced north and south pole sets.

16. A sensor as recited in Claim 13, wherein said magnet is a bar magnet having north pole and south pole faces.

17. A sensor as set forth in Claim 13, wherein said magnet is movable relative to said Hall effect sensor along a first direction said magnet being constrained against movement relative to said Hall effect sensor in other directions.

18. A sensor as set forth in Claim 17, wherein said magnet and said sensor have overmolded plastic housings, said plastic housing being guided along each other to constrain said magnet and said Hall effect sensor to move relative to each other only along said first direction.

19. A disc brake actuator comprising:

a pair of pistons, each of said pistons being driven to drive a brake pad into engagement with an item to be braked;

an adjustment mechanism for said pistons, said adjustment mechanism including tappet gears associated with each piston and driven to drive a threaded tappet, said threaded tappet in turn driving said pistons, said pistons being constrained from rotation such that when said tappet gear are driven to rotate, a threaded connection between said tappet gears and said pistons causes said pistons to move linearly and compensate for wear on said brake pad;

an electric motor for driving said tappet gears; and

a displacement sensor for sensing movement of at least one of said pistons during braking operation, said displacement sensor providing feedback to a control for said motor, said control controlling said motor to drive said tappet gears and provide appropriate adjustment based upon an amount of movement sensed by said displacement sensor, said displacement sensor including a magnet having at least one set of north and south poles, with an axis defined between said poles, and a sensor movable relative to said magnet, said sensor being a Hall effect sensor, and a path of movement between said Hall effect sensor and said magnet being defined such that said path is non-parallel to said axis.

20. A brake as set forth in Claim 19, wherein said magnet is fixed to move when said piston moves, and said Hall effect sensor is fixed within a housing for said brake.